Cementation Exponent m. Function and Calibration - Petrophysics Course & Training

The objective of m is to convert the log test's Ø and a*Rw, to the log evaluation's quote of Ro (water saturated formation resistivity), not the heart evaluation edition of Ro or the"authentic" Ro. The aim here would be to produce the log investigation report that the reservoir saturation. M is an internal log evaluation parameter. If it fails to create Ro from log data (not core data) it is not appropriate for purpose and in the actual world is"wrong". The lab is an insufficient analogy of in-situ conditions mainly since the scale of laboratory m is cm whilst the scale of the logged Rt, with which it'll be used, is metre or possibly dm. The unspoken assumption of log analysis"equations" is that inputs have come in precisely the exact same bit of rock, which they've not if the rock is inhomogeneous and the scales of measurement of the inputs differ.

We choose to discount Nature's very own reservoir states m lab and try to create reservoir conditions in the lab. Why? This specific religion in core data is misconceived. . M have to predict the log data's Ro not the laboratory information's Ro.

Think about the detailed objective of every step and focus on the data that will actually be used in the test.

Saturation Exponent n. Function and Calibration

The objective of n is to convert the log test's value of Ro/Rt to the true reservoir Sw. The log evaluations metre scale estimate of Rt/Ro departs in the laboratory's cm scale dimension of Rt/Ro as heterogeneity increases. The value of n is determined by the definition plot, commonly found in core analysis reports, such that n is the negative slope of Log(Sw) vs. Log(Rt/Ro). This storyline is populated by core information using an Rt/Ro axis not measured in the scale of the log data which will really be used in the evaluation. No wonder we get wrong answers with log analysis!

This n definition plot can be utilized more effectively if we consider the detailed objective and concentrate on the data which will actually be used in the evaluation. The approach of this author is to determine by populating the n definition plot with data that is sensible. This is not cm scale core information unless we're lucky enough to be dealing with a metre scale homogeneous"blocky sand" for example.

Don't be tricked into thinking you have the"right" response for n and m just because you've done center SCAL analysis. Think.

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